Claims

1. Film-forming compositions consisting of polyvinyl alcohol and a setting system.

2. Film-forming compositions according to claim 1, wherein the the setting system consists of hydrocolloids and cations.

3. Film forming compositions according to claim 1, wherein the the setting system contains optionally sequestering agents.

4. Film forming compositions according to claim 1, wherein the polyvinyl alcohol is contained in an amount of 90 to 97 % by weight by a water content of 2 to 7 % by weight and the hydrocolloids are contained in an amount of 0.01 to 10 %, preferably 0.05 to 5 % by weight and cations in an amount of 0.001 to 5 %, preferably 0.01 to 3 % by weight.

5. Film forming compositions according to claim 1, wherein the setting system contains optionally sequestering agents in an amount of 0.001 to 5 %, preferably 0.01 to 3 % by weight of the composition.

6. Film forming compositions according to claim 1, wherein the hydrocolloids of the setting system are selected from polysaccharides.

7. Film forming compositions according to claim 1, wherein the hydrocolloids of the setting system are selected from alginates, agar gum, guar gum, locust bean gum (carob), carrageenan, tara gum, gum arabic, ghatti gum, Khaya grandifolia gum, tragacanth gum, karaya gum,

pectin, arabian (araban), xanthan, gellan, starch, Konjac mannan, galactomannan, or funoran.

8. Film forming compositions according to claim 1, wherein the hydrocolloids of the setting system are selected from exocellular polysaccharides.

9. Film forming compositions according to claim 1, wherein the hydrocolloids of the setting system are selected from xanthan, acetan, gellan, welan, rhamsan, furcelleran, succinoglycan, scleroglycan, schizophyllan, tamarind gum, curdlan, pullulan, or dextran.

10. Film forming compositions according to claim 1, wherein the hydrocolloids of the setting system are selected from gellan gum or kappa-carrageenan.

11. Film forming compositions according to claim 1, wherein the optional sequestering agent or mixture of sequestering agents of the setting system is selected from ethylenediaminetetraacetic acid, acetic acid, boric acid, citric acid, edetic acid, gluconic acid, lactic acid, phosphoric acid, tartaric acid or salts thereof, methaphosphates, dihydroxyethylglycine, lecithin or beta cyclodextrin.

12. Film forming compositions according to claim 14, wherein the sequestering agent or mixture of sequestering agents is selected from ethylenediaminetetraacetic acid or salts thereof or citric acid or salts thereof.

13. Film forming compositions according to claims 1 to 12 containing additionally plasticizers in an range from about 0 to 40 % based upon the weight of the gelatin.

14. Film forming composition according to claim 13 wherein the plasticizer or mixture of plasticizers is selected from polyethylene glycol, glycerol, sorbitol, sucrose, corn syryp, fructose, dioctyl-sodium sulfosuccinate, triethyl citrate, tributyl citrate, 1,2-propylenglycol, mono-, di- or triacetates of glycerol, or natural gums.

Sub A2

15. Film forming compositions according to claims 1 to 14 containing additionally coloring agents in an range from about 0 to 10 % based upon the weight of the cellulose ether.

16. Film forming compositions according to claim 15 wherein the coloring agent or mixture of coloring agents is selected from azo-, quinophthalone-, triphenylmethane-, xanthene- or indigoid dyes, iron oxides or hydroxides, titanium dioxide or natural dyes.

17. Film forming compositions according to claim 16 wherein the coloring agent or mixture of coloring agents is selected from patent blue V, acid brilliant green BS, red 2G, azorubine, ponceau 4R, amaranth, D+C red 33, D+C red 22, D+C red 26, D+C red 28, D+C yellow 10, yellow 2 G, FD+C yellow 5, FD+C yellow 6, FD+C red 3, FD+C red 40, FD+C blue 1, FD+C blue 2, FD+C green 3, or brilliant black BN.

18. Film forming compositions according to claim 15 wherein the coloring agent or mixture of coloring agents is selected from carbon black, iron oxide black, iron oxide red, iron oxide yellow, titanium dioxide, riboflavin, carotenes, anthocyanines, turmeric, cochineal extract, clorophyllin, canthaxanthin, caramel, or betanin.

Sub A3

19. Containers for unit dosage forms for agrochemicals, seeds, herbs, foodstuffs, dyestuffs, pharmaceuticals,

or flavoring agents produced from the compositions according to claims 1 to 18.

20. Container according to claim 19 which is a pharmaceutical capsule.

21. Containers according to claims 19 or 20, characterized in that it has a coating.

22. Coated container according to claim 21 wherein the coating is selected from cellulose acetate phthalate, polyvinyl acetate phthalate, methacrylic acid gelatins, hypromellose phthalate, hydroxypropylmethyl cellulose phthalate hydroxyalkyl methyl cellulose phthalates or mixtures thereof.

23. Caplets encapsulated in film forming compositions according to claims 1 to 18.

24. Capsules according to claim 19 or 20 characterized in that the capsule halves are sealed with one or more layers of the composition according to claims 1 to 18.

25. Capsules according to claim 19 or 20 characterized in that the capsule halves are sealed by a liquid fusion process.

26. Aqueous solutions of compositions according to claims 1 to 18 for the manufacturing of capsules.

27. Aqueous solutions according to claim 26, containing polyvinyl alcohol in an amount of 10 to 60 %, preferably 20 to 40 % by weight, hydrocolloids in an amount of 0.01 to 5 %, preferably 0.03 to 1.0 % by weight and cations in an amount of 0.001 to 3 %,

preferably 0.01 to 1 % by weight of the aqueous solution.

28. Aqueous solutions according to claim 26 or 27, containing optionally sequestering agents in an amount of 0.001 to 5 %, preferably 0.01 to 3 % by weight of the aqueous solution.

Sub A6

29. Use of aqueous gelatin solutions according to claims 26 to 28 for the manufacturing of hard capsules in a dip moulding process.

30. Manufacturing of hard capsules from aqueous polyvinyl alcohol solutions according to claims 26 to 28 in a dip moulding process with conventional hard gelatin capsules process parameters and equipment.

Add B2

ADD D1